



Knowing and understanding our soils

For more information about RP161 and what's included, contact Farmacist – Burdekin 07 4782 2300 or Mackay 07 4959 7075.

The RP161 project is funded through the Department of Environment and Science (DES) and the Australian Government Reef Trust, and partnered with Farmacist and SRA.

The end of the crushing is approaching, but before blocks are ploughed-out, it's recommended to take soil samples directly after harvest while the beds are still intact. It might be the last thing on the to-do list, but getting in early has benefits. Knowing and understanding our soils, and soil testing regularly, are two of the SIX EASY STEPS.

There are various tools available to improve our knowledge and understanding of our soils to make more informed management decisions. Soil data is one of these tools which is key in understanding variability within a paddock.

Soil surveys that identify soil zones can be accessed via Queensland Globe or by downloading the dataset from the Queensland Spatial Catalogue. However, resolution is dependent on the existing dataset for the area. For example, the Jardine area in the Burdekin is considered high resolution at 1:25,000 scale as shown below which was published in 1988. In comparison to the Burdekin delta that is at a 1:50,000 scale which is deemed medium resolution.

Electrical Conductivity (EC) or electromagnetic (EM) mapping, can provide a higher resolution to soil maps. As part of the RP161 program currently running in the Central and Burdekin regions, participants can take advantage of EC/EM mapping offered through the project. These maps show the differences in electrical conductivity within blocks which is influenced by soil type, moisture and soil salinity. With effective ground-truthing through GPS referenced soil tests, areas of sodicity can be determined and prescription application of ameliorants such as gypsum can be produced to ensure cost effective applications of ameliorants. Files are produced and loaded into application equipment to allow the spreader to automatically change rates once it crosses zones.

SOIL TESTING REGULARLY

Why is soil testing important?

Soil sampling is key to:

- Identifying soil nutrients or soil chemical factors that are limiting crop growth
- Improving productivity and profitability by putting fertiliser dollars where they are most beneficial
- Increasing fertiliser use efficiency by determining appropriate nutrient application rates
- Informing decisions and management tools for your whole farm nutrient plan
- Using effective ameliorants to improve possible physical and chemical imbalances
- Measuring changes in soil fertility and record trends over time
- Improving environmental protection by preventing over fertilising.

When to soil sample?

The recommended timing for soil sampling is directly after final harvest prior to any cultivation. This will give you the most accurate determination of the soil status and will also provide ample time for test results to be received by the lab, and interpreted prior to planting. In addition, if any ameliorants are required (specifically lime and gypsum) these can be applied prior to the wet season for maximum utilisation.

Importance of sampling a representative soil

As shown in the diagram below, only 10g of soil is used for analysis by the lab. Correct sampling is therefore critical in achieving a representative sample, and furthermore results of the paddock.

The use of the previously mentioned EC/EM generated maps can reveal the in-field variability which can assist in determining representative sample locations within in-field zones. Taking separate soil samples from these zones allows for variable rate ameliorant application, and in some cases nutrients.

Geo-referencing soil test locations allows the monitoring of specific sites over time. Additionally, the GPS position remains constant even if the block number changes in the future.

As part of the RP161, growers will have all their historical soil samples recorded spatially and displayed in Google Earth along with any EC/EM data. This data is used to make informed decisions regarding nutrient management plans based off the SIX EASY STEPS methodology.

Article supplied by Farmacist. ■

(Over page) Farmacist agronomist Heidi Hatch soil sampling in the Burdekin. (Below left) Example of a soil survey. Scale 1:25,000. (Below) The process for collecting a soil sample.

